

## Arkema Facility - Harvey Response

Crosby, TX

Arkema Inc.

September 1, 2017

Project #109489 Summary

## 1.0 Introduction

As a result of flooding events related to Hurricane Harvey, the Arkema facility located in Crosby, TX suffered a loss of power and failure on refrigeration of manufacturing process. The loss of temperature control resulted in degradation and heating of organic peroxides, with the potential of creating a fire. As a precautionary measure, local authorities established a 1.5-mile radius evacuation zone around the facility.

On August 31, 2017, the Center for Toxicology and Environmental Health, LLC (CTEH®) was contacted by Arkema Inc. (Arkema) to initiate air monitoring and sampling around the community areas outside of the evacuation zone perimeter. This submittal summarizes the results of real-time air monitoring conducted by CTEH® personnel on from August 31, 2017 through September 1, 2017. A map of the site location is provided in **Attachment A**.

## 2.0 Real-time Air Monitoring

All real-time air monitoring instrumentation was calibrated per the manufacturer's recommendations prior to air monitoring. Handheld, real-time air monitoring was conducted for carbon monoxide (CO) and volatile organic compounds (VOCs) using RAE Systems MultiRAE Plus instruments. Additionally, levels of particulate matter (PM<sub>2.5</sub>) potentially related to fire smoke were assessed using TSI SidePak AM510 and Dusttrak aerosol monitors. **Table 1** summarizes the data for all real-time air monitoring readings recorded in Crosby, TX from 12:57 August 31, 2017 through 06:00 on September 1, 2017. Maps of real-time air monitoring locations are provided as **Attachment B**.

**Table 1 Real-time Handheld Air Monitoring Readings**  
**12:57 August 31, 2017 – 06:00 September 1, 2017**

Analyte	Instrument	Number of Readings	Number of Detections	Range of Detections*
Benzene	UltraRAE	23	0	< 1.0 ppm
CO	MultiRAE Plus	16	0	< 1.0 ppm
Cumene	Gastec Tube 122L	6	0	< 50 ppm
LEL	MultiRAE Plus	6	0	< 1.0 %
VOCs	MultiRAE Plus	139	0	< 0.1 ppm
PM <sub>2.5</sub>	AM510	110	110	0.023 – 0.074 mg/m <sup>3</sup>
	Dusttrak	25	25	0.023 – 0.049 mg/m <sup>3</sup>

\*If detections were not observed, the instrument detection limit is listed in this column.

### 3.0 Analytical Air Sampling

To supplement real-time air monitoring, CTEH® deployed areas along the perimeter of the evacuated area within the community. Evacuated canister (Minican™) samplers were regulated to collect air evenly over a 24-hr period. Analytical air samples will be submitted to SGS Galson Laboratories, an AIHA-accredited laboratory, for analysis using EPA Method TO-15. A map highlighting the analytical air sampling locations is provided as **Attachment C**. Analytical Air Sampling Results will be reported upon receipt from the laboratory.

# **Attachment A**

## **Site Location Map**





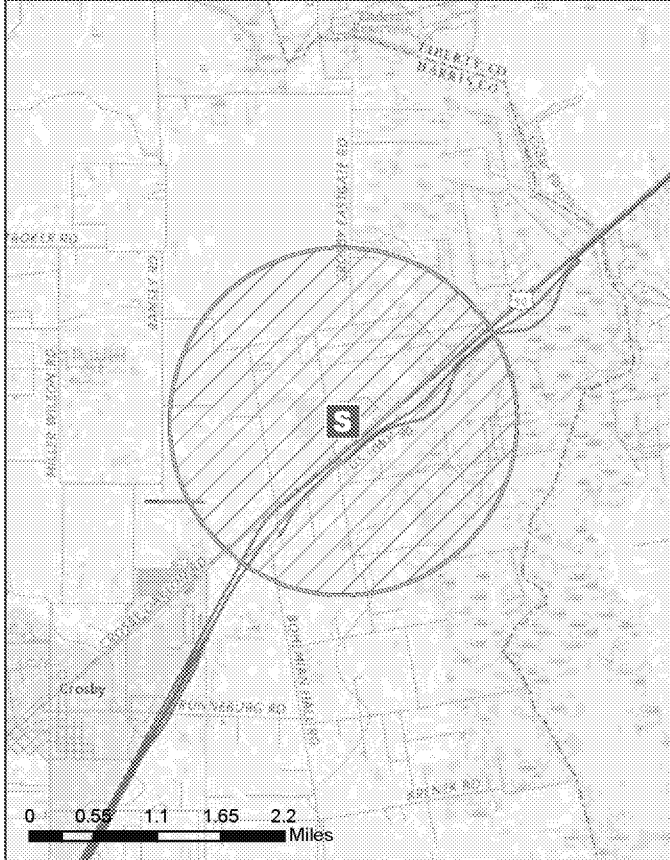
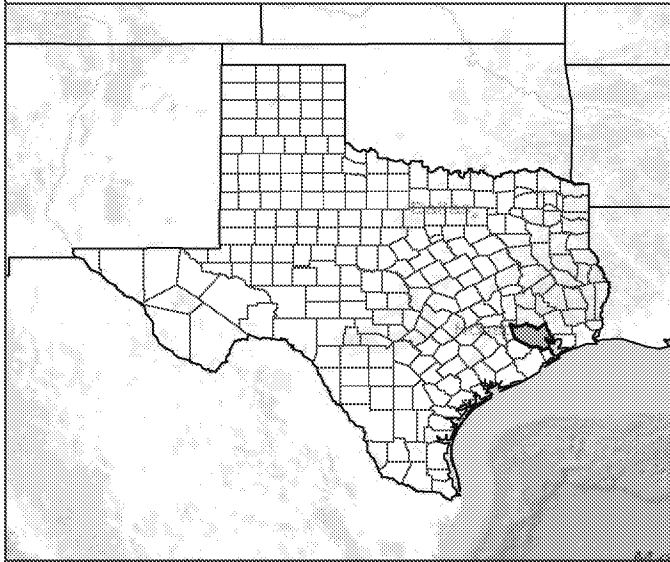


# Harvey Response


## Site Location




Project: 109458  
Client: Arkema  
City: Crosby, TX  
County: Harris



**Legend**

 Site

 1.5 Mile Buffer

# **Attachment B**

## **Handheld Real-time Air Monitoring Locations**



# Hand-held Real-time Reading Locations

Harvey Response - 12:57 August 31, 2017 to 06:00 September 1, 2017



Project: 109458  
Client: Arkema  
City: Crosby, TX  
County: Harris



Legend

Site

1.5 Mile Buffer

Real Time Reading





# Benzene Hand-held Real-time Reading Locations

Harvey Response - 12:57 August 31, 2017 to 06:00 September 1, 2017



Project: 109458  
Client: Arkema  
City: Crosby, TX  
County: Harris



Legend

- Benzene Real Time Reading Location
- S Site
- ▨ 1.5 Mile Buffer



# Carbon Monoxide Hand-held Real-time Reading Locations

Harvey Response - 12:57 August 31, 2017 to 06:00 September 1, 2017



Project: 109458  
Client: Arkema  
City: Crosby, TX  
County: Harris



Legend

CO Real Time Reading Location

Site

1.5 Mile Buffer





# Cumene Hand-held Real-time Reading Locations

Harvey Response - 12:57 August 31, 2017 to 06:00 September 1, 2017



Project: 109458  
Client: Arkema  
City: Crosby, TX  
County: Harris



PROJECTION SYSTEM: UTM15 COORDINATE SYSTEM: WGS84

Last Updated: 9/1/2017 12:02:52 PM

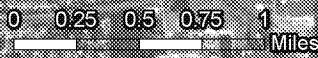


# LEL Hand-held Real-time Reading Locations

Harvey Response - 12:57 August 31, 2017 to 06:00 September 1, 2017



Project: 109458  
Client: Arkema  
City: Crosby, TX  
County: Harris



Legend

- LEL Real Time Reading Location
- Site
- ▨ 1.5 Mile Buffer





# PM2.5 Hand-held Real-time Reading Locations

Harvey Response - 12:57 August 31, 2017 to 06:00 September 1, 2017



Project: 109458  
Client: Arkema  
City: Crosby, TX  
County: Harris



Legend

PM2.5 Real Time Reading Location

Site

1.5 Mile Buffer



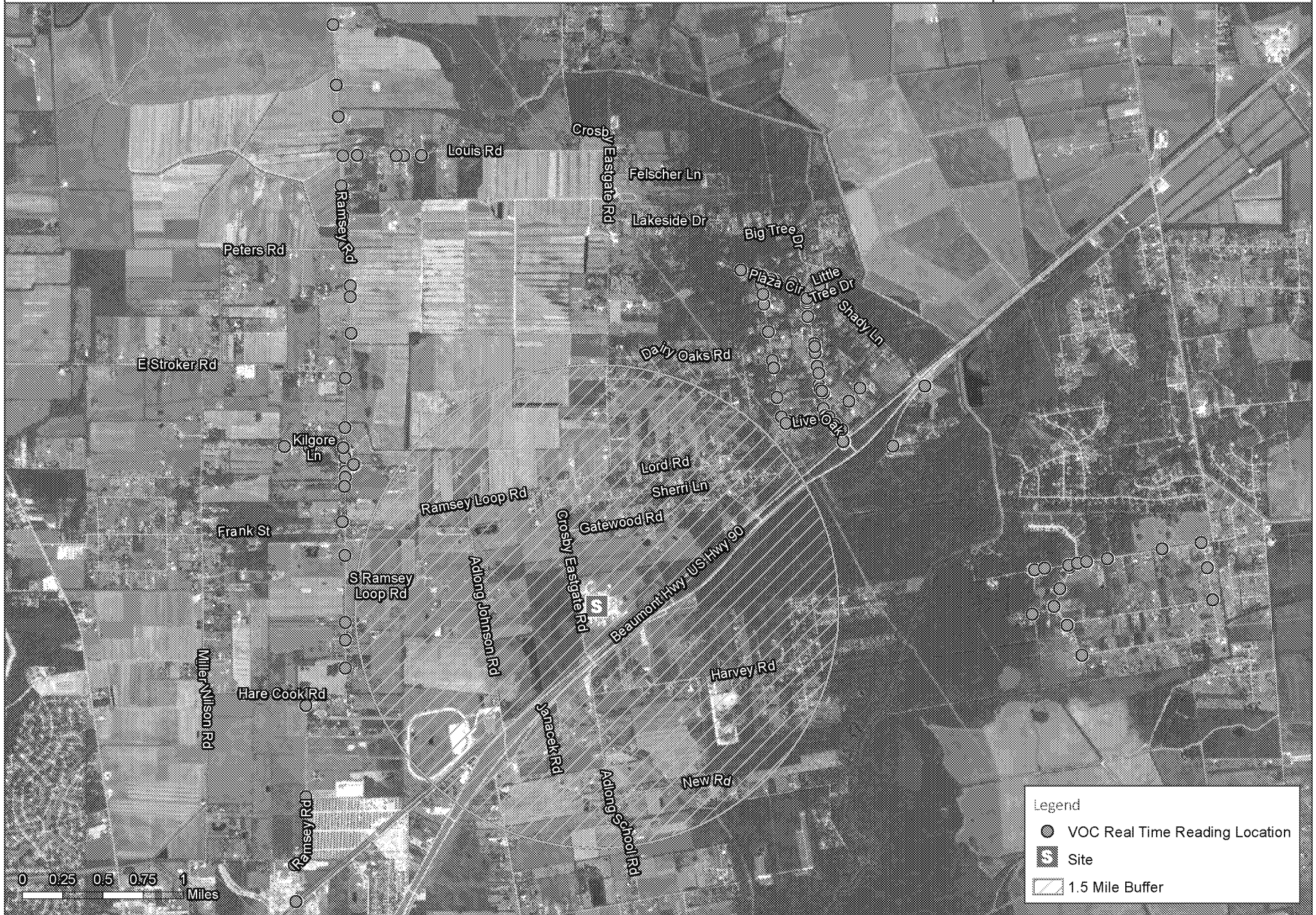


# VOC Hand-held Real-time Reading Locations

Harvey Response - 12:57 August 31, 2017 to 06:00 September 1, 2017



Project: 109458  
Client: Arkema  
City: Crosby, TX  
County: Harris



Legend

VOC Real Time Reading Location

Site

1.5 Mile Buffer

# **Attachment C**

## **Map of Analytical Air Sampling Locations**



# Analytical Air Monitoring Station Locations

Harvey Response - August 31, 2017



Project: 109458  
Client: Arkema  
City: Crosby, TX  
County: Harris



PROJECTION SYSTEM: UTM15 COORDINATE SYSTEM: WGS84

Last Updated: 9/1/2017 10:06:50 AM

# **Attachment D**

## **KHPY Windrose**

**(Highland Park Airport - 12.5 miles SSE of Site)**

Weather Station: KHPY  
Date: 2017-08-31

